

Illness perception and quality of life in patients with contact dermatitis

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Summary

Background. People's subjective perceptions of illness are important determinants of their ways of coping with health threats and the ensuing physical and mental outcomes, including quality of life (QoL), which has been consistently reported to be impaired by contact dermatitis.

Objectives. To investigate the relationships of subjective illness perceptions and dermatological QoL in atopic, contact and occupational dermatitis patients and a comparison group of patients with other dermatological diseases.

Patients and methods. Three hundred and three patients of four diagnostic groups filled in the Brief Illness Perception Questionnaire and the Skindex-16 (+ occupational impact items) Dermatological QoL questionnaire before clinical examination and patch testing.

Results. Perceptions of serious consequences, greater symptom burden and more uncertainty and worry were associated with lower QoL ($r_s > 0.50$). Overall, patients reported low personal control over their condition and low understanding of the disease (3.5 and 4.8, respectively, on a 0–10 scale). QoL was most impaired among occupational dermatitis patients (mean = 46) and least impaired among patients who were later diagnosed as suffering from conditions other than contact dermatitis (mean = 62).

Conclusions. Identifying critical components of illness perceptions in patients with atopic, contact and occupational dermatitis may enable the design of consultations and interventions to fit patients' perceptions, which could affect their QoL.

Key words: contact dermatitis; illness perceptions; occupational dermatitis; quality of life.

People's subjective perceptions of health and illness are important determinants of their ways of coping with various health threats and the ensuing physical and mental outcomes, according to the Leventhal Self-regulation Model (1). Research has provided ample evidence for this assertion in a variety of disease populations (2), and has shown that physical and psychological outcomes are

often more closely related to these perceptions than to patients' clinical status or more objectively assessed measures of disease severity (3). In the dermatological area, only a few studies have investigated illness perceptions, mostly among psoriasis patients (4–6). The only study we are aware of that examined patients with atopic dermatitis found patients' illness perceptions to be associated with their emotional representation of the disease, even after controlling for disease duration and severity (7). Our goal is to expand the knowledge on the role of illness perceptions among contact dermatitis patients.

Similar to the growing acknowledgement of the importance of subjective illness perceptions, in the dermatological area it has long been recognized that many patients suffer from an impaired quality of life (QoL), and that the level of impairment can be better judged from their

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subjective reports than from their clinical status (8). Contact and atopic dermatitis patients' reports of their QoL of life show that this disease has a considerable impact on QoL, as compared with healthy controls (9). Emotional functioning is affected: adult atopic dermatitis patients reported high levels of anxiety and difficulty in controlling anger (10), as well as feelings of stigmatization (11). Moreover, functioning at work is also impaired, because the disease imposes limitations on the tasks that can be carried out, and leads to missed days of work and lower productivity (12), and even to the need to change jobs (13). Studies focused on occupational dermatitis have confirmed its serious impact on QoL (14, 15).

The current study brings together these two views of contact dermatitis patients' assessments of their condition – their subjective perceptions of various dimensions of the disease, and their self-reported dermatological QoL. The objectives of the study are: (i) to examine illness perceptions and QoL reported by patients referred to a patch test clinic before the patch testing procedure and prior to having a clear diagnosis of their dermatological condition, according to four different diagnostic groups determined following the test; and, (ii) to assess the extent to which these two types of assessment, namely, illness perception and QoL, are associated. Note that these aims are based on the assumption that patients present for testing after having suffered symptoms for a while, and have therefore formed their own perception of the illness, which may both reflect and affect their QoL.

The groups for this investigation were chosen according to clinical entities with different aetiopathogenesis and outcome, namely, contact dermatitis, atopic dermatitis,

and occupational dermatitis, all of which had a chronic course. The group for comparison, which was labelled 'other disease', included patients referred to the same patch test clinic who were patch test-negative and were diagnosed as suffering from various chronic dermatological conditions, including asteatotic eczema, vesicular hand eczema, granuloma annulare, seborrhoeic dermatitis, rosacea, lichen sclerosus et atrophicus, and psoriasis characterized by different aetiopathogenesis from the first three groups.

Patients and Methods

Patients

Three hundred and three consecutive adult patients (>18 years of age) referred to a patch test clinic were included (mean age 46 years, 63% female; see Table 1). After clinical examination and patch testing, patients were assigned to one of four diagnostic groups as follows (1): a contact dermatitis group, which included patients diagnosed as suffering from allergic contact dermatitis (with positive patch test reactions) and irritant contact dermatitis (with negative patch test reactions) ($n = 101$); (2) an atopic dermatitis group – patients fulfilling the accepted diagnostic criteria for atopic dermatitis (16) ($n = 66$); (3) an occupational dermatitis group, according to Mathias's criteria (17), which included patients with allergic and irritant occupational contact dermatitis ($n = 54$); and (4) a group that we named 'other diseases' ($n = 82$). The last of these included mostly inflammatory skin conditions such as asteatotic

Table 1. Sociodemographic characteristics of patients in the four diagnostic groups

Group	1–contact dermatitis $n = 101$	2–atopic dermatitis $n = 66$	3–occupational contact dermatitis $n = 54$	4–other diseases $n = 82$	Total $n = 303$
Sex*** (% female)	71.0	86.4	22.2	62.7	63.4
Age*** (mean $\pm$ SD)	49 $\pm$ 16	37 $\pm$ 14	43 $\pm$ 12	49 $\pm$ 16	46 $\pm$ 16
Marital status**					
Single (%)	13.1	43.9	18.5	18.1	22.2
Married (%)	79.8	48.5	75.9	73.5	70.5
Divorced (%)	5.1	6.1	5.6	4.8	5.3
Widow	2	1.5	0	3.6	2
Level of education** (% post-high school)	63	65	33	60	57
Employment**					
Full-time (%)	55.7	52.3	78.8	50.6	57.8
Part-time (%)	16.5	34.8	13.5	22.2	21.6
Unemployed (%)	3.1	7.6	5.8	4.9	5.1
Housewife (%)	8.2	3	0	6.2	5.1
Retired (%)	16.5	1.5	1.9	16	10.5

Chi-square tests were used to determine the significance of the differences among the groups.

** $p < 0.01$; *** $p < 0.001$.

eczema, vesicular hand eczema, granuloma annulare, seborrhoeic dermatitis, rosacea, lichen sclerosis et atrophicus, and psoriasis, all of which were long-standing and had a chronic course.

At the time of data collection, during the first encounter between the patient and physician and before patch testing, participants had already been experiencing symptoms for several years, according to their reports; two-thirds of the sample reported that their symptoms had begun more than a year previously. The median times since onset of symptoms were 3 years for the contact dermatitis group, 2.5 years for the atopic dermatitis group, and 2 years for the occupational dermatitis and the other diseases groups. The median times from first seeking care for their complaints until the patch test were 1.5 years for the contact dermatitis group, 2 years for the atopic dermatitis group, and 1.25 years for the occupational dermatitis and the other diseases groups.

Instruments

The questionnaire included demographic questions and two instruments.

Dermatological QoL was assessed with the Skindex-16 questionnaire (18), which includes 16 items in three subscales: symptoms, emotions, and functioning. An additional subscale measured occupational impact with five items (13). For each item, the participant is asked to rate 'During the past week, how often have you been bothered by ...' on a continuous bipolar response scale with seven boxes anchored by the words 'never bothered' to 'always bothered'. All responses are transformed to a linear scale of 100, varying from 0 (no effect) to 100 (effect experienced all the time), so that high scores indicate more impaired QoL. The internal reliability Cronbach alpha for the four subscales ranged between 0.86 and 0.91; their intercorrelations ranged between $r = 0.50$ and $r = 0.72$. A total score was also computed (Cronbach alpha = 0.94).

Illness perceptions were assessed with the Brief Illness Perception Questionnaire (19), which measures the components of the illness perception as identified by the Leventhal Commonsense Model of Illness and additional research (1, 20). These components include a single item for each of the following eight dimensions: patients' perceptions of the consequences of their condition for various domains of their lives, the timeline of the condition (chronic versus acute), personal controllability (the extent to which they can exert any control over their condition), perceived treatment efficacy, symptom burden, worry about the condition, understanding of what it entails, and emotional effects (emotional representation) of the

condition (e.g. the extent to which the condition makes you angry or fearful). We added two items assessing 'ups and downs' and 'uncertainty within a 1-year period' (21). These items were added later, so data were available for only 45% of the patients, and were therefore excluded from statistical tests conducted on the full sample. All of the items were rated on a scale of 0–10, ranging from none (e.g. no consequences; no personal controllability) to very high levels (e.g. severe consequences, great personal control over the condition).

Procedure

The study was approved by the Research Ethics Committee at the Sapir Medical Centre. Patients referred by dermatologists and family physicians to a specialized contact dermatitis clinic at a tertiary referral centre for patch testing were recruited at their visit to the clinic. In all, 5 patients refused to take part in the study. Patients met briefly with the consulting dermatologist, who explained the study objectives and asked them to sign an informed consent form. The questionnaires were then filled in, during the waiting time for the clinical examination and patch tests. All patients were evaluated clinically and were patch tested with the European baseline series and additional series as required, with the IQ Chambers® and test series of Chemotechnique Diagnostics, Vellinge, Sweden. The methodology of the procedure was in accordance with the International Contact Dermatitis Research Group guidelines, with an application time of 2 days and readings performed on the second and third days. The clinical relevance of the positive reactions was evaluated. A positive reaction was considered to have present clinical relevance if the patient was known to have cutaneous exposure to a product known to contain the allergen to which the patient reacted. The exposure assessment was based on information from packages. Diagnoses were recorded by the dermatologist after clinical examination of the patients and review of the results of the patch testing.

Results

The demographic characteristics of the patients in the four groups are shown in Table 1. Members of group 3, occupational dermatitis patients, were predominantly males, with up to high school education and employed full-time; the other three groups were mostly female, with higher education and a lower percentage of working full-time. Atopic dermatitis patients were, on average, younger than the other groups, and correspondingly included a smaller percentage of married individuals.

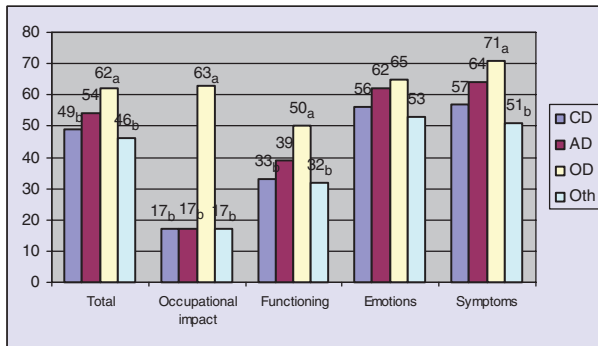


Fig. 1. Scores on the dermatological quality of life scales for the four diagnostic groups. AD, atopic dermatitis; CD, contact dermatitis; OD, occupational dermatitis; Oth, other dermatological conditions. The groups differ significantly on all scales as well as the total score, according to the MANOVA overall test, $p < 0.05$. Different subscripts indicate significant differences ($p < 0.05$) between groups, according to *post hoc* tests with a Bonferroni correction.

QoL was related to patient characteristics. Higher age was related to less bother being reported in the QoL scales (correlations ranged between $r = -0.13$ and $r = -0.14$, $p < 0.05$, with the exception of the symptoms subscale, which was unrelated to age). More years of schooling were also related to less impairment in QoL (correlations ranged between $r = -0.20$ and $r = -0.32$, $p < 0.01$). There were no sex differences, with the exception of greater occupational impact being reported by men (probably reflecting their higher prevalence in the occupational dermatitis group).

Dermatological QoL was most impaired in the occupational dermatitis group (Fig. 1). Almost 90% of this group expressed some concern about being able to continue working in their job and about their financial future, and two-thirds expressed some concern that they might be fired because of their skin condition. Multivariate analysis of variance showed that the groups differed significantly on all four QoL subscales. *Post hoc* comparisons with a Bonferroni correction revealed significant differences between the occupational dermatitis group (group 3) and the other three groups in occupational impact. In addition, this group reported higher levels of symptoms and impact on functioning than patients with other diseases (group 4). Group 3 also differed significantly from the contact dermatitis group (group 1) in impact on functioning.

Figure 2 shows the scores on the various dimensions of illness perception. Multivariate analysis of variance showed that the groups significantly differed on all dimensions except for perceptions of personal control over the disease, uncertainty, and 'ups and downs'. *Post hoc* comparisons between groups, with a Bonferroni

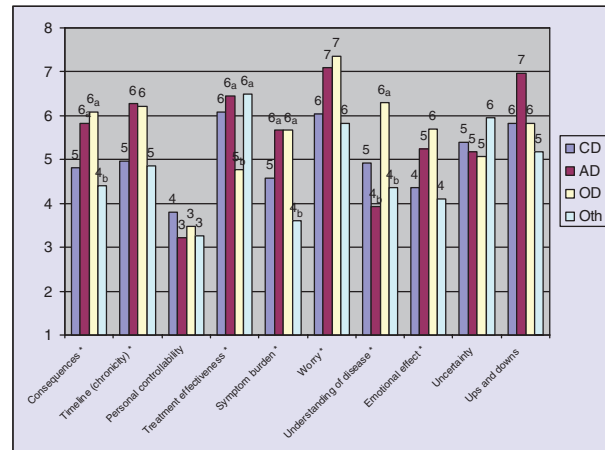


Fig. 2. Scores on the illness perception dimensions for the four diagnostic groups. AD, atopic dermatitis; CD, contact dermatitis; OD, occupational dermatitis; Oth, other dermatological conditions. An asterisk next to the illness perception dimension (*) indicates that the groups differ significantly on this dimension according to the MANOVA overall test, $p < 0.05$. Different subscripts indicate significant differences ($p < 0.05$) between groups, according to *post hoc* tests with a Bonferroni correction.

correction, showed that patients with occupational dermatitis (group 3) reported better understanding of their condition but lower belief in treatment efficacy. Patients with other skin diseases (group 4) reported fewer consequences and less symptom burden than patients with atopic or occupational dermatitis (groups 2 and 3). Overall, perceptions of personal control over the disease were quite low (mean 3.5 on a 0–10 scale), as was understanding of the condition (mean 4.8).

Correlations among the illness perceptions subscales (not shown) were in the expected directions: for example, greater symptom burden was related to more worry and more serious consequences. It is interesting to note that better understanding of the condition was related to perceiving more personal control over it. In addition, more 'ups and downs' were related to greater uncertainty and more worry.

Next, we tested the correlations between the QoL subscales and the dimensions of illness perception (Table 2). Low dermatological QoL was significantly correlated with perceptions of serious consequences of the disease, high symptom burden, greater worry and strong emotional effect. Perceptions of the disease as chronic and as having 'ups and downs' and feeling greater uncertainty about the status of the disease within a year were also correlated with lower dermatological QoL. Perceptions of low personal control over the disease were correlated with a more negative impact of the disease on emotional aspects of QoL.

Table 2. Pearson correlations between quality of life and illness perception scores (n = 303)

Skindex Illness perception	Total	Symptoms	Emotions	Functioning	Occupational impact
Consequences	0.78	0.57	0.71	0.72	0.50
Time line (chronicity)	0.32	0.24	0.32	0.26	0.20
Personal controllability	-0.13	^a	-0.21	^a	^a
Treatment effectiveness	-0.15	^a	-0.15	-0.17	-0.20
Symptoms	0.50	0.47	0.42	0.45	0.30
Worry	0.68	0.43	0.74	0.54	0.45
Understanding of disease	^a	^a	^a	^a	0.16
Emotional effect	0.71	0.47	0.70	0.63	0.41
Uncertainty	0.54	0.43	0.53	0.48	0.25
Ups and downs	0.46	0.48	0.45	0.36	0.19

^aCorrelations $\geq |0.20|$ are significant at $p < 0.01$; correlations $> |0.12|$ are significant at $p < 0.05$; correlations $\leq |0.10|$ are not significant ($p > 0.05$), and are not shown.

Discussion

This study investigated patients' preliminary perceptions of their condition before they underwent extensive clinical evaluation and patch testing and received a diagnosis and an explanation of their condition and course of treatment. The findings show that patients' subjective perceptions of the disease are related to their QoL and provide further evidence of the negative impact of contact dermatitis on QoL in terms of symptoms, emotions, and functioning, in the sample as a whole as well as in each of the four diagnostic groups, namely, contact, atopic and occupational dermatitis, and a fourth group, identified after patch testing as suffering from other skin conditions.

The findings reflect the perceptions formed during a long period of illness and care-seeking before referral to a specialized centre for extensive evaluation. Throughout this long period of time, patients did not receive a definite diagnosis, but they did form subjective perceptions of their illness. These perceptions were found to be related to patients' perceived QoL, in line with the Self-regulation Model, and most likely guided their decisions regarding self-care and professional care-seeking.

The symptoms, emotions and functioning subscales of QoL resemble some of the dimensions of illness perception (i.e. the consequences, symptom burden, worry and emotional effect dimensions). Therefore, the associations between the two types of scales provide further validation of the scales and dimensions in a sample of dermatology patients. However, illness perceptions include additional important dimensions, such as patients' perceptions of their own control over the disease and of the efficacy of the medical treatment, and the extent to which they understand their condition. These perceptions were formed over years in which patients suffered from symptoms, had episodic contacts with physicians, but apparently had not received a clear diagnosis and course

of treatment, which could add uncertainty and stress to that already experienced because of the symptoms.

Contact dermatitis patients' illness perceptions in this study were quite negative as compared with patients identified in the study as suffering from other dermatological conditions and with patients from other studies, suffering from other chronic diseases, some potentially life-threatening. A comparison with findings reported elsewhere regarding patients with diabetes, asthma or coronary heart disease (at discharge post-myocardial infarction) (19) shows that the current sample reported more severe consequences, lower personal control and treatment efficacy, and levels of worry that are similar to those of patients with diabetes and post-myocardial infarction. Interestingly, perceptions of the timeline (the chronicity) of the disease are lower in the current sample, in line with a lower understanding of the condition. It seems that, at least at this stage, just before extensive evaluation including clinical examination and patch testing, patients do not comprehend that their condition is chronic, and lack understanding of its nature and treatment, even though most of them have been experiencing symptoms for some time.

Regarding specific groups, dermatological QoL was most impaired in the occupational contact dermatitis group, as previously reported (22). Occupational impact was high in this group because of the technical and social difficulties that they experience at work and their worries about being able to keep their jobs. At a mean age of 43 years with 79% working full-time, this could be very distressing. Even though the time since symptoms began and the time since they sought medical care were lower in this group, these patients reported better understanding of their condition but also a lower belief in the efficacy of the treatment in controlling or curing their condition. Such disbelief could add to their distress.

The contact dermatitis and atopic dermatitis groups did not differ significantly. They had been experiencing symptoms for longer than the other two groups, and may have somehow adapted to their condition. This may have been easier to them than for the occupational dermatitis group to do; in the latter group, comparatively young patients are at risk of losing their ability to work in the occupation that they were trained in. However, the contact and atopic dermatitis groups also reported negative perceptions and quite substantial impairment of their QoL. The fourth group, of patients with other dermatological diseases, reported more positive illness perceptions and less impairment, which is plausible in light of their diagnoses, which are chronic but involve mostly episodic manifestation of clinical symptoms.

Our study sample is quite large in total, but the distinctions between the four diagnostic groups yielded much smaller subgroups. Thus, our study is limited in its ability to further break up the group to study the impact of characteristics such as age and sex. Most notably, the occupational contact dermatitis group includes only 12 women, a number that is too small for tests that could determine whether their perception and experience of the disease differ from those of men with occupational contact dermatitis. This is an important question that could be addressed in future studies.

The findings regarding the different dimensions of illness perception have important implications for doctor–patient communication. First, these findings underscore the need to provide medical counselling to contact dermatitis patients, in order to ensure that they understand their condition, and its antecedents and treatment, as well as the ways in which they can exert control over the condition. Training physicians to elicit and discuss patients' subjective illness perceptions can contribute to improving the overall atmosphere during the medical consultation and to a thorough consideration of patient self-management (23). This is especially important with

contact and atopic dermatitis patients, who receive a definite diagnosis only after many months in which they have probably tried various types of self-management, most of which have been unsuccessful and frustrating.

Second, psychosocial support could also be beneficial for dermatological patients (24). The current study suggests that it could focus on helping patients to adapt their lives and find suitable replacements for activities that they must give up so as to minimize the interference of the disease and the negative emotions that it arouses (25). Studies in other patient populations have provided evidence for the success of interventions that are tailored to patients' illness perceptions (26). Third, spouses also develop illness perceptions, which interact with patients' perceptions to affect support provision and receipt (27) and the well-being of both partners (28). As over two-thirds of the sample are married, it may be beneficial to also involve their partners in consultation and in interventions aimed at better understanding of and coping with the disease (29). Contact, atopic and occupational dermatitis patients may also benefit from clinicians' attention to their illness perceptions and QoL reports.

To conclude, this study adds patients' subjective understanding of their illness to the literature on the impairment in QoL in patients with contact dermatitis (in general, and occupational contact dermatitis in particular). It highlights the role of the patients' own perceptions of their illness, especially in the state in which they arrive for patch testing: after having experienced symptoms for months or years, they have formed perceptions of their disease that are similar or even more negative than those of patients with chronic life-threatening disease, they lack a feeling of control over it, and lack understanding of their condition. These negative perceptions are related to their reports about their QoL. Addressing these issues following the diagnosis may help patients to feel less uncertainty and to have more control, and possibly help them to adapt in ways that may improve their QoL.

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